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10/537,880	06/07/2005	Willem Marie Coene	NI021294	8414
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EXAMINER				
LAMB, CHRISTOPHER RAY				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/537,880

Applicant(s)

COENE ET AL.

Examiner

CHRISTOPHER R. LAMB

Art Unit

2627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/ICE)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Objections

2. Claims 1-19 objected to because of the following informalities: the acronym "HF" should be fully written out: i.e., as "high frequency." Appropriate correction is required.
3. Claim 10 is objected to because of the following informalities: "neighbouring" should be "neighboring." Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 5-7 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 5:

The use of the phrase "in particular" in line 3 renders the claim indefinite. Since "in particular" has several meanings, including "for example" or "specifically," the metes and bounds of the claim are unclear.

Specifically, it's not clear if the part of the claim following "in particular" is required to meet the claim, or just an example of something that would meet it. In other words, does any photo detector "portioned into an even number of equally sized detector

partitions" meet the claimed subject matter, or does said photo detector have to comprise either four equally sized detector partitions or six equally sized detector partitions?

Since "in particular" can mean "for example," and the use of the phrase "for example" is considered to be unclear, the claim language fails to particular point out and distinctly claim the subject matter which applicant regards as the invention. See MPEP 2173.05(d).

Regarding claims 6 and 7:

They are dependent on claim 5.

Regarding claim 9:

It contains language similar to that of claim 5: it is not clear from the phrase "in particular" whether a number of hexagonally shaped detector partitions is being claimed, or whether it must be a cluster of seven hexagonally shaped detector partitions having the recited structure.

Furthermore, the phrase "in case of a hexagonal lattice" is also unclear. Is applicant trying to claim wherein there is a hexagonal lattice, or simply stating that if there is one, it must have the further structure claimed?

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claim 19 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 19 is drawn to a "computer program" *per se*, therefore, fail(s) to fall within a statutory category of invention.

A claim directed to a computer program itself is non-statutory because it is not:

A process occurring as a result of executing the program, or

A machine programmed to operate in accordance with the program, or

A manufacture structurally and functionally interconnected with the program in a manner which enable the program to act as a computer component and realize its functionality, or

A composition of matter.

See MPEP § 2106.01. Data structures not claimed as embodied in computer readable media are descriptive material *per se* and are not statutory because they are not capable of causing functional change in the computer. See, e.g., *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure *per se* held nonstatutory). Such claimed data structures do not define any structural and functional interrelationships between the data structure and other claimed aspects of the invention, which permit the data structure's functionality to be realized. In contrast, a claimed computer readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory. Similarly, computer programs claimed as computer listings *per se*, i.e., the descriptions or expressions of the programs are not physical "things." They are neither computer components nor statutory processes, as they are not "acts" being

performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer, which permit the computer program's functionality to be realized.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-4, 8, and 10-16 is rejected under 35 U.S.C. 102(b) as being anticipated by Maeda et al. (US 5,491,678).

Regarding claim 1:

Maeda discloses:

Bit detector for detecting the bit values of bits of a channel data stream stored on a record carrier (Fig. 17b),

wherein the channel data stream comprises a channel strip of at least two bit rows one-dimensionally evolving along a first direction and aligned with each other along a second direction, said two directions constituting a two-dimensional lattice of bit positions (column 4, lines 50-60),

said bit detector comprising:

a photo detector for detecting light reflected from or transmitted through said record carrier in response to one or more incident light beams, each light beam being directed onto a position along said second direction (column 5, lines 1-15),

said photo detector being partitioned into at least two detector partitions for detecting part of the reflected or transmitted light and for generating partial HF signal values (column 16, lines 50-65: each detector is divided into four partitions, each generating a signal), and

a signal processing means for determining the bit values of the bits of said channel data stream from said partial HF signal values (column 17, lines 5-15).

Regarding claim 2:

Maeda discloses:

wherein said photo detector is adapted to image the plane of an exit pupil of a lens onto said photo detector (Maeda does not use this terminology, but it follows from Fig. 17a: the plane of the exit pupil of the focusing lens is imaged through the system to the light detectors),

said lens having an exit pupil being provided in an optical read-out unit for directing the light reflected from or transmitted through said record carrier onto said photo detector (again, this is apparent from Fig. 17a).

Regarding claim 3:

Maeda discloses:

wherein the bits of said channel data stream are arranged on a two-dimensional hexagonal or square lattice (e.g., Fig. 2, Fig. 3, or Fig. 18).

Regarding claim 4:

Maeda discloses:

wherein the detector partitions are oriented along the directions of the reciprocal space lattice corresponding to the real space lattice of bits (this follows from column 16, line 60 to column 17, line 5: if detectors 407 and 408 and 407' and 408' are used to detect the tracking error, they must be aligned along the track).

Regarding claim 8:

Maeda discloses:

wherein said photo detector is adapted to image the plane of an information layer on said record carrier onto said photo detector (this follows from Fig. 17a, column 5, lines 1-10).

Regarding claim 10:

Maeda discloses:

wherein said signal processing means are adapted for determining the bit value of a bit of said channel data stream from partial HF signal values generated by said photo detector from light detected in response to a light beam directed on the bit whose bit value shall be detected and at least one light beam directed on a neighbouring bit of said bit (column 14, lines 15-30; column 15, line 60 to column 16, line 15: there are two lasers with two spots and the two signals are used together for data detection).

Regarding claim 11:

Maeda discloses:

wherein the bits of said channel data stream are grouped into hexagonal lattice clusters having one central bit and six nearest neighbour bits or square lattice clusters having one central bit and four or eight nearest neighbour bits (shown in Fig. 18) and

wherein said signal processing means are adapted for determining the bit value of a bit of said channel data stream from said partial HF signal values and the sum of said partial HF signal values generated in response to the same incident light beam (column 17, lines 1-15).

Regarding claim 12:

Maeda discloses:

a number of said photo detectors each having at least two detector partitions for each bit row (visible in Fig. 17b).

Regarding claim 13:

Maeda discloses:

wherein the partial HF signal values, that are generated from the detector partitions for each row, are transformed into another set of modified partial HF signal values that are further used in the signal processing for bit detection (the circuitry to perform said transformation is shown in Fig. 17b).

Regarding claim 14:

Maeda discloses:

wherein said modified partial HF signal values are generated by means of symmetry operations (column 18, lines 5-30; feeding the output of paired photodetectors into differential amplifiers is a symmetry operation).

Regarding claim 15:

This is a claim to the method performed by the bit detector of claim 1 and is met when the detector operates. No further elaboration is necessary.

Regarding claim 16:

Every element positively recited has already been identified with respect to earlier rejections. No further elaboration is necessary.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda et al. (US 5,491,678) in view of Official Notice.

Regarding claim 17:

Maeda discloses a reproduction device comprising a bit detector as discussed in the rejection of claim 1.

Maeda discloses:

a modulation code decoder (e.g., Fig. 8, or alternatively Fig. 11 and 12, or alternatively Fig. 13).

Maeda does not disclose:

an error correction code decoder.

The Examiner takes Official Notice that incorporating an error correction code into a user data stream, and including an error correction code decoder in a reproduction device, is well known in the art.

It would have been obvious to one of ordinary skill in the art to include an error correction code decoder in the reproduction device disclosed by Maeda.

The rationale is as follows:

Incorporating error correction in a data stream can both detect and fix errors, improving performance. Since error correction is commonly used in optical recording and reproduction, one of ordinary skill could easily have added an error correction code decoder to the apparatus disclosed by Maeda and achieved predictable results.

Regarding claim 18:

This is a claim to a method corresponding to the apparatus of claim 17 and is met when the apparatus operates.

Regarding claim 19:

Maeda discloses all the steps to the method of claim 15 as discussed above.

Maeda does not disclose:

computer program code means for causing a computer program to perform said steps when said computer program is executed on a computer.

The Examiner takes Official Notice that it is well known in the art to control optical recording and reproduction devices using a computer (think, e.g., of a dvd drive in a home computer).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include in Maeda wherein said steps are performed by a computer due to computer program code.

The rationale is as follows:

Maeda already discloses all the details of the method. One of ordinary skill could easily have programmed a computer to carry them out and achieved predictable results.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Shimano et al. (US 5,774,444) discloses two-dimensional recording and a portioned detector; so does Satoh et al. (US 5,572,508).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER R. LAMB whose telephone number is (571)272-5264. The examiner can normally be reached on 9:00 AM to 5:30 PM Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Feild can be reached on (571) 272-4090. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 10/537,880
Art Unit: 2627

Page 12

/Christopher R Lamb/
Examiner, Art Unit 2627